

LIQUID CRYSTAL DISPLAY SUBSTRATE

Patent Number: JP9005764
Publication date: 1997-01-10
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Requested Patent: ☐ JP9005764
Application Number: JP19950152849 19950620
Priority Number (s):
IPC Classification: G02F1/1343 ; G02F1/136 ; H01L29/786
EC Classification:
Equivalents:

Abstract

PURPOSE: To improve a wide visual field angle characteristic by forming electrodes for display and reference electrodes within the same plane parallel with transparent substrates and changing the light transmittance of a liquid crystal layer by the electric fields generated in parallel with the transparent substrates between both electrodes.

CONSTITUTION: The display electrodes SL and reference electrodes CT of the liquid crystal display substrate having the display electrodes SL and the reference electrodes CT on the liquid crystal layer side surface of the one transparent substrate of the transparent substrates arranged opposite to each other via the liquid crystal layer are directly formed on the main surface of the transparent substrate and are formed parallel and flush with the surfaces of the transparent substrate without interposing an insulating film therebetween. The electric fields generated between the display electrodes SL and the reference electrodes CT are, therefore, impressed parallel with the transparent substrates, i.e., in the direction orthogonal with the thickness direction of liquid crystals. The liquid crystal molecules juxtaposed by the impression of the electric fields are flatly disposed within the plane parallel with the transparent substrates. Then, the liquid crystal molecules aligned with the major axis in the observation direction do not exist any more when the display is observed from the direction diagonal with the display surface.

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